



US005784473A

United States Patent [19]
Ferren

[11] **Patent Number:** **5,784,473**
[45] **Date of Patent:** **Jul. 21, 1998**

[54] **SOUND SYSTEM**

[75] Inventor: **Bran Ferren**, East Hampton, N.Y.

[73] Assignee: **Disney Enterprises, Inc.**, Burbank, Calif.

[21] Appl. No.: **609,769**

[22] Filed: **Feb. 23, 1996**

[51] Int. Cl.⁶ **H04B 1/00**

[52] U.S. Cl. **381/86; 381/24; 381/90; 381/155; 381/160; 181/155; 181/156; 181/191**

[58] Field of Search **381/24, 77, 86, 381/90, 155, 160; 181/155, 156, 191**

[56] **References Cited**

U.S. PATENT DOCUMENTS

1,965,405 7/1934 Blattner .
1,988,250 1/1935 Olson .
4,023,566 5/1977 Martinmaas .
4,492,826 1/1985 Chin .
4,797,934 1/1989 Hufnagel .
4,949,386 8/1990 Hill .
4,991,222 2/1991 Nixdorf .

Primary Examiner—Curtis A. Kuntz

Assistant Examiner—Duc Nguyen

Attorney, Agent, or Firm—Pretty, Schroeder & Poplawski

[57] **ABSTRACT**

This disclosure relates to a sound system that provides high quality sound notwithstanding extreme background noise. Preferably implemented in amusement ride vehicles, such as roller coasters, the present sound system mounts left and right channel sets of speakers in each seat back, one on each side of a center section that supports the passenger's back. These speakers are mounted in a wing-back relationship, such that they direct their sound away from one another and toward laterally extending arms that extend forward from the seat back, outside of the speakers. These arms mount an inward-facing spherical reflector, which reflects and disperses sound toward a range of positions associated with height variance of the passenger. Using this arrangement, all passengers will experience the same high quality sound, whatever the passenger's height. The left and right channels speakers are each coaxially-mounted, two-way speakers. Of these, the larger (rear) bass speakers share a common speaker enclosure formed within the seat back, and both of the left and right channels are driven in common for bass. A passive driver cone is mounted at the top of the speaker enclosure, to optimize bass production and move air in the vicinity of the passenger's neck, to further enhance sound. Using the preferred device, high quality sound may be provided to each passenger of the vehicle, including sophisticated special effects and music, all of which beneficially contribute to the overall ride experience.

24 Claims, 4 Drawing Sheets

